

What is claimed is:

1. A microorganism belonging to the family Acetobacteraceae, which has a 16S rRNA gene comprising a nucleotide sequence of SEQ ID NO: 1 or a nucleotide sequence equivalent to the nucleotide sequence of SEQ ID NO: 1 from the viewpoint of molecular taxonomy based on the 16S rRNA sequence, and has an ability to produce xylitol or D-xylulose from glucose.
- 10 2. The microorganism of claim 1 which belongs to the genus *Asaia*.
- 15 3. The microorganism of claim 2 which is a strain of *Asaia ethanolicfaciens*.
- 20 4. A microorganism which has a 16S rRNA gene comprising a nucleotide sequence of SEQ ID NO: 2 or a nucleotide sequence equivalent to the nucleotide sequence of SEQ ID NO: 2 from the viewpoint of molecular taxonomy based on the 16S rRNA sequence, and has an ability to produce xylitol or D-xylulose from glucose.
- 25 5. The microorganism of claim 4 whose 16S rRNA gene comprises any one of the nucleotide sequences of SEQ ID NOS: 3-5.

6. The microorganism of claim 4 which belongs

to the genus *Zucharibacter*.

7. The microorganism of claim 4 which is a strain of *Zucharibacter floricola*.

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8. A microbial strain P528 (FERM BP-6751) having an ability to produce xylitol or D-xylulose from glucose.

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9. A microbial strain S877 (FERM BP-6752) having an ability to produce xylitol or D-xylulose from glucose.

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10. A microbial strain S1009 (FERM BP-6753) having an ability to produce xylitol or D-xylulose from glucose.

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11. A microbial strain S1019 (FERM BP-6754) having an ability to produce xylitol or D-xylulose from glucose.

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12. A microbial strain S1023 having an ability to produce xylitol or D-xylulose from glucose (FERM BP-6755).

13. A method for producing xylitol or D-xylulose, which comprises culturing a microorganism having an

ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose in the medium, and collecting xylitol or D-xylulose from the medium.

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14. The method of claim 13 wherein the microorganism is a microorganism of any one of claims 1-12.

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15. A method for producing ethanol, which comprises culturing a microbial strain P528 (FERM BP-6751) in a suitable medium to accumulate ethanol in the medium, and collecting ethanol from the medium.